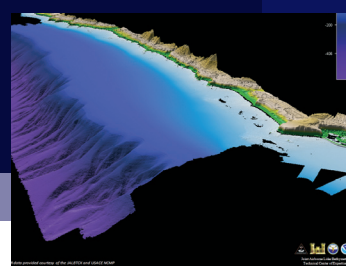


BAY AREA AUTOMATED MAPPING ASSOCIATION

# THE BAAMA JOURNAL

VOLUME 4, ISSUE 2 FALL 2010



## IN THIS ISSUE:

- SUMMER IN THE GULF: CAL FIRE AND THE DEEPWATER HORIZON OIL SPILL RESPONSE ..... 3
- FUGRO MAPS THE WEST COAST: A SEAMLESS DATASET OF THE LAND/SEA INTERFACE ALONG THE COASTLINE ..... 5
- NASA AMES RESEARCH CENTER 'DEVELOP' PROGRAM ..... 7
- INTERVIEW WITH KASS GREEN, PRESIDENT OF KASS GREEN & ASSOCIATES ..... 9
- WINNERS OF THE 2010 BAAMA EDUCATIONAL SCHOLARSHIP ..... 10



## A MESSAGE FROM THE PRESIDENT



Hello Readers,

Every year the Board has an annual retreat. This year the retreat was held on October 13th in Oakland, California. The retreat is nothing more than a long Board meeting where the Board and BAAMA members get together and plan the following year's initiatives. Initiatives that came out of the 2009 retreat include the new web site, online membership management, and the annual educational meeting calendar. I want to spend a little time highlighting the 2010 – 2011 initiatives.

### DIVERSIFIED VENUES

- The Board hopes to hold two educational meetings in San Francisco at the Microsoft building at 835 Market Street. If you recall, BAAMA held a meeting there on portal technology in July 2010. The feedback on the venue was very positive; it has plenty of room, a great internet connection and is near BART.
- We plan on holding three meetings at our normal spot at MTC.
- Incidentally, every year there is talk about looking for a venue in the South Bay. If any of you has a venue in mind, please email me at [jhobbs@BAAMA.org](mailto:jhobbs@BAAMA.org)

### INCREASED CONTENT ON THE BAAMA WEB SITE

You will soon see additional sections added to the BAAMA.org web site including a blog, BAAMA news, and community news. Furthermore, current content will go through an update and clean-up process. With time the Board hopes to identify content owners for many different sections of the site.

### EDUCATIONAL MEETING RECORDINGS

The Board first began recording educational meetings in 2008; the goal being to record every meeting. The recordings were edited and then posted in the "podcasts" section of the home page. With time this became a logistical challenge. Eventually the effort to record the meetings stopped. In 2011 the Board hopes to reignite this effort and ideally get every educational meeting posted on the web site.

I hope to see you all at GIS Day and the annual holiday party!

Spatially yours,

Jeff Hobbs

2010-11 BAAMA President

### UPCOMING BAAMA EVENTS

#### NOVEMBER

11.17.10

#### GIS DAY 2010

UC Berkeley, Mulford Hall  
Registration is free.

#### DECEMBER

12.09.10

#### HOLIDAY PARTY

6:30 pm – 9:00 pm  
The Washington Inn  
495 Tenth Street  
Oakland, CA, 94607

#### JANUARY

01.20.11

#### EDUCATIONAL MEETING: SPATIAL ANALYSIS

8:30 am - 12:00 noon  
Location: TBD

#### MARCH

03.17.11

#### EDUCATIONAL MEETING: SPATIAL DATABASE/WORKFLOW/ MOBILE COMPUTING

8:30 am - 12:00 noon  
Metropolitan Transportation  
Commission (MTC)

Check out [BAAMA.org/meetings](http://BAAMA.org/meetings) for more information.

# BAAMA

CONNECTING PEOPLE WHO NEED GIS  
WITH THOSE WHO KNOW GIS

BAAMA is the vital organization of GIS professionals in the San Francisco Bay Region that promotes partnerships and teamwork with users of GIS technology to improve our environment and community. BAAMA is a proud chapter of the Urban and Regional Information Systems Association (URISA).

The mission of BAAMA is to be the primary forum of the San Francisco Bay Region geospatial community that provides education for professional development, networking opportunities, leadership, coordination, and representation — and have fun doing it!

## BAAMA JOURNAL EDITORIAL BOARD

CATHERINE BURTON

## KEEP US INFORMED

Please send us your comments, ideas, and news. If you want to write an article about your recent project, let us know! We are interested in pieces that educate and inform the Bay Area GIS audience of innovative projects using geospatial technologies. Content Editor — Editor@BAAMA.org

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BAAMA welcomes members to take volunteer roles in the organization's activities! If you would like to get involved, please contact a board member!

Bay Area Automated Mapping Association  
P.O. Box 71073, Oakland, CA 94612

## A NOTE FROM THE EDITOR

There are so many interesting GIS, remote sensing (RS) and geo-web professionals living in the Bay Area. Technicians make maps happen, developers and entrepreneurs constantly push business and geo-technology norms, business development and marketing folks keep food on the table, managers organize the chaos, and executives keep us on a path to success. We are fortunate to live in a place where innovation and ability seem to be in the water. In the Bay Area, we drink from the fountain of possibility.

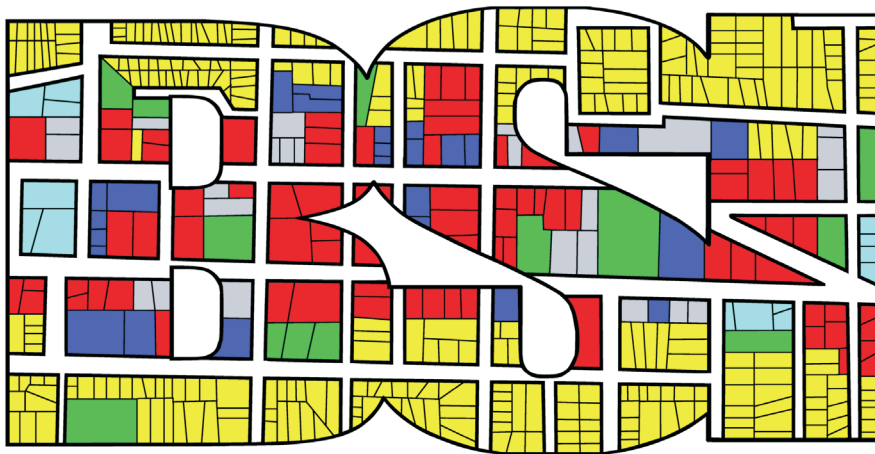


As Editor, part of my job is to find out who's doing what in Bay Area geo and ask them to participate in our community by submitting an article to the Journal. I enjoy this work because it allows me to learn about the people, companies, and agencies behind new applications of GIS, RS and geo-web technology. Sometimes I come across a small tribe of geo-techs who I've never seen before and curiously wonder, "Where have you been? Why don't we know more about you?"

Readers, allow me to implore you: reach out to a GIS, RS or geo-web friend or colleague who you know is not active in the BAAMA community. Pass the Journal onto that person. Ask them to join us at an educational meeting. Tell them we want to know more about why they work in geo. Encourage them to step out from behind their computer screen and participate. We want to know more about who makes this Bay Area a geo-hub.

Thank you for your continued support.

Catherine Burton  
Editor, BAAMA Journal



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# SUMMER IN THE GULF: A CAL FIRE GIS SPECIALIST ASSISTS THE FLORIDA DIVISION OF EMERGENCY MANAGEMENT DURING THE DEEPWATER HORIZON OIL SPILL RESPONSE

BY JOE LARSON, GIS SPECIALIST, CAL FIRE / SAN LUIS OBISPO COUNTY FIRE



Left to right: Mike DeLorenzo, State Emergency Response Team (SERT) Chief; Commander John Hartzell, Coast Guard liaison; author Joe Larson.

My regular work days are spent in San Luis Obispo County at CAL FIRE / SLO County Fire where I serve as a GIS Specialist on various mapping projects. In July of 2010, the Emergency Management Assistance Compact (EMAC), a congressionally ratified organization that provides interstate mutual aid, contacted CAL FIRE. EMAC needed a GIS Specialist in Florida to assist the Division of Emergency Management with the Deepwater Horizon oil spill clean-up. For two weeks during the summer, I was given an amazing opportunity to assist the State of Florida with GIS efforts related to the spill. The job description was a little intimidating, but the opportunity to help, paired with the excitement of this new challenge, pushed me to take the assignment. Not really sure what to expect, I packed my bags and took a plane to Florida. I had been following news coverage about the event and, admittedly, had my own wild preconceptions. Since I had not been following the event from the perspective of a GIS user, I scrambled to do my homework on the GIS response by the Florida Division of Emergency Management (FDEM).

I arrived on July 18th at the Emergency Operations Center (EOC), was greeted by GIS staff and "information-overload" began! The main EOC is an impressively large room. Five huge projectors fill an immense wall with information and images about the incident. Surrounding the main EOC are smaller work rooms for various Emergency Support Function (ESF) personnel who make up the State Emergency Response Team (SERT). SERTs are comprised of all state agencies and volunteer organizations which FDEM then groups into 18 ESFs such as Information & Planning, Law Enforcement, and Hazmat. ESFs carry out coordination and completion of assigned tasks. I tried my best to assimilate without being the new guy from California. Although SERT's use of Incident Command System was slightly different than my experience with CAL FIRE and another previous job at the USDA Forest Service it was still very much a system I was comfortable working in; a familiar model of command, control and coordination. At CAL FIRE, I work in the Situation Unit of the Planning Section; whereas with SERT, I supported ESF 5: Information and Planning. On this assignment, there were far more agencies working together to support the response than I had ever experienced. A typical California wildfire response may include local, state and/or federal fire agencies and law enforcement. The Deepwater Horizon event involved local, state, federal, military, law enforcement, wildlife, health, economic, volunteer and British Petroleum personnel. It was impressive to see such a mix of interests working cohesively.



Throughout my two week assignment in Florida, a typical day during consisted of the following:

- The “morning checklist” – Produce a series of paper map products, deliver them to various ESF offices and post throughout the EOC. This process was facilitated by utilizing REST services in map layers and made simple thanks to custom scripts.
- Preparation for morning briefing – GIS staff assisted with the morning briefing by coordinating slides from individual ESFs and operating the complex audio-visual equipment (webcam, computers, monitors, projectors, cameras, etc.) involved in producing a smooth briefing.
- Processing geotagged photos – Aerial reconnaissance flights were conducted by several agencies.
- Maintenance, development and support of GATOR – GATOR, a geospatial assessment tool, is described in further detail below.
- Processing other map and data requests as needed by ESFs and cooperating agencies.

The cornerstone of SERT’s GIS response to Deepwater Horizon was the Geospatial Assessment Tool for Operations and Response (GATOR). GATOR is an ESRI Flex Viewer application which connects to ArcGIS Server and other services to display a common operating picture of the Deepwater Horizon response. GATOR developers Richard Butgereit and Richie Dible worthily deserve recognition. GATOR is a resource not only for SERT but for cooperating agencies and the public. GATOR utilizes widgets that automatically update via GeoRSS feeds from incoming reconnaissance reports. The tool is part of Florida’s effort to participate in Virtual USA, an initiative launched by the United States Department of Homeland Security to share information between federal, state and local emergency responders. GATOR is also consistent with Florida’s strong public records statute, the “Sunshine Law,” which allows for open public inspection and access. It was encouraging to see non-GIS users come through the EOC and freely use GATOR set up on a “smart-board” or touch-screen monitor.

To comprehend just how extensive the Florida Emergency Management GIS response to Deepwater Horizon is, visit [www.floridadisaster.org/gis/dhr/](http://www.floridadisaster.org/gis/dhr/). The resource is a rich collection of data (tables, zipped shapefiles), services (ESRI REST, Google Earth network link/image overlays), images, photos, links and maps.

Incident Mapper is SERT’s steadfast KML Viewer. Built with the Google Maps API, Incident Mapper serves thousands of photos taken over Florida’s waters to support the Deepwater Horizon response. The photos were used to verify boom deployments (the floating device that captures/contains oil) and impacts from the spill. Geotagged photos acquired almost every day between early May and late August are available for the public to view or download. The photos are from flights conducted by various agencies such as: Civil Air Patrol (their biggest deployment since World War II), Florida Fish and Wildlife Conservation Commission, and Department of Environmental Protection.

The oil spill clean-up event had been ongoing for months before my arrival and the Florida Emergency Management staff deserves a lot of credit for their persistence and fortitude (I can honestly say that my assignment became tiring after its two-week sequence of 12-hour days). I saw firsthand the pride and dedication Floridians have for their state. The people I worked with, worked day-in and day-out to make sure people affected by the oil spill were compensated, wildlife resources were rehabilitated, and that their state’s beaches and other resources were cleaned-up. I learned so much from the people of the Florida State Emergency Response Team. Richard Butgereit and his GIS staff truly coordinated an impressive GIS-response. I hope to share my experience further with my own agency, as Florida and California are similar in the fact that each state has a high annual likelihood of potential natural disasters. As emergency responders, our ability to share information with others is critical. I am grateful for the opportunity EMAC provided me to assist Florida and to learn from the people responding to the oil spill. I hope to use this experience to further facilitate California’s GIS response to emergency.



Florida Division of Emergency Management Emergency Operations Center, 07.18.10.

#### ABOUT THE AUTHOR

Joe Larson currently works in San Luis Obispo, CA for CAL FIRE / SLO County Fire as a Research Analyst I (GIS). He holds a Bachelor of Science degree from Cal Poly, San Luis Obispo in Forestry and Natural Resources, with a minor in GIS. Joe is passionate about Open-source software and enabling others’ practical use of GIS, especially when both involve disaster response. ✨



# FUGRO MAPS THE WEST COAST: A SEAMLESS DATASET OF THE LAND/SEA INTERFACE ALONG THE COASTLINE

BY EDWARD SAADE, PRESIDENT AND MANAGING DIRECTOR,  
FUGRO EARTHDATA

## WEST COAST MAPPING PROJECTS MERGE LAND AND SEA

Extending nearly 1,500 miles from Mexico to Canada, the West coast of the United States contains unique and dynamic natural resources and includes some of the most productive waters in the world. Today, this area is faced with an increasing number of challenges such as: polluted waters, declining fish and marine life populations, risk of tsunamis, severe storms, the degradation of near-shore habitats, and the impacts of sea-level rise due to climate change.

## THE NEED FOR BETTER DATA

To address these pressing issues, federal and state organizations in California, Oregon and Washington have turned to geospatial technology to collect vital information about the coastal zone. Geospatial technology such GIS, airborne imaging, and LiDAR facilitate effective decision making by offering coastal resource managers a means of obtaining accurate maps of the coastal zone, seafloor substrate, marine habitat types, and bathymetry.

Fugro, a private firm that specializes in collecting and interpreting data of the Earth's surface and subsurface, has been helping to safeguard shorelines through participation in several landmark west coast mapping programs. Since the spring of 2010, the company has deployed high-resolution airborne LiDAR and digital imaging systems via fixed-wing aircraft to collect precise information of thousands of miles of flight lines along the west coast of the United States. These coastal mapping efforts are designed to support research and policy decisions for a variety of needs, including: coastal and marine spatial planning, sea-level rise baseline, land-use management, and coastal erosion, among others.

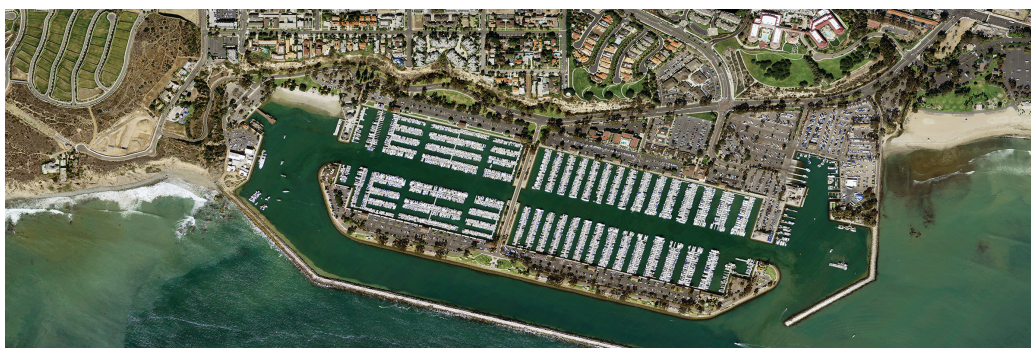
In addition to monitoring and managing environmental changes, state and local stakeholders can use this data for numerous other applications, including: offshore coastal development, marine fisheries management, transportation and shipping coordination, and air and water quality assessments.

## MERGING TECHNOLOGIES FOR LAND/SEA DATA

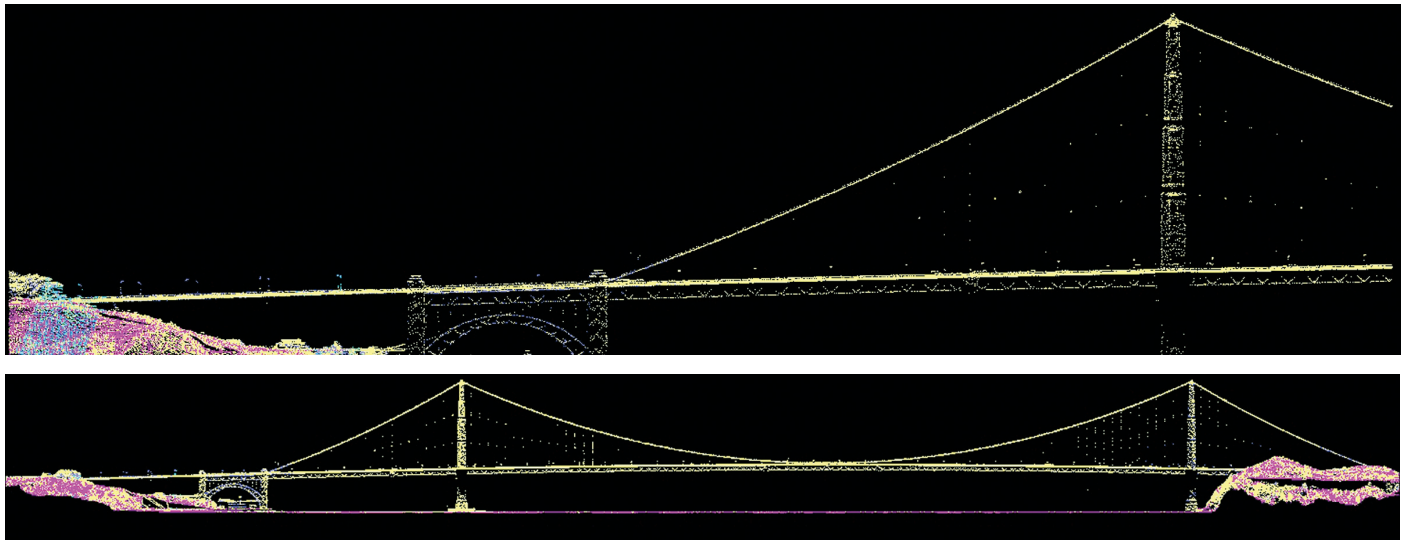
The U.S. Army Corps of Engineers National Coastal Mapping Program (NCMP) (<http://shoals.sam.usace.army.mil/Mapping.aspx>) addresses coastal management plans through the provision of seamless data that accurately depicts the onshore and near shore terrain. To support this program the Mobile District of the Corps of Engineers tasked Fugro to develop a seamless dataset of the land/sea interface along the entire coastline of California.

The project kicked off in the fall of 2009, and has since been extended to include Oregon and Washington coastlines. Airborne mapping in coastal environments is no easy task. Some of the challenges include: impacts of weather, low clouds and fog, military operations, tide windows and coordinating multi-agency participation. In this project, airborne missions are carefully coordinated to enable nearly concurrent, tide-coordinated acquisition of three unique airborne mapping technologies. Data acquisitions include: bathymetric LiDAR data from the shoreline to 1,000 meters offshore, and topographic LiDAR and aerial digital imagery from the shore to 500 meters inland.

When completed, the data will form a continuous onshore and offshore dataset representing the current condition of the entire Pacific coastline. Stretching from the Mexican to the Canadian borders, bathymetric and topographic LiDAR will be merged into



Digital orthoimagery acquired by Fugro at a 35 cm pixel resolution over the coast of Orange County, California. The data will be used in conjunction with bathymetric and topographic LiDAR data to monitor the affects of sea level rise, land use/land cover, along with other coastal management applications.



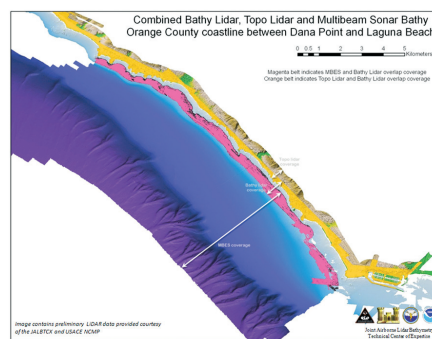
LiDAR derived topographic elevation data of the San Francisco Bay area. Fugro acquired imagery over the 453 sq mile area using a Leica ALS60 digital sensor. The data will be used to monitor and preserve coastal environments in the Bay area.

a single elevation data set.

Once integrated into state and local GIS infrastructure, officials will have the power to predict, monitor and manage physical changes in the coastal environment, including the effects of sea level rise, decreased precipitation, and varying temperature patterns. The data also feeds in to the National Oceanic and Atmospheric Administration's (NOAA) Digital Coast program, which provides coastal resource management professionals with decision support tools and information ([www.csc.noaa.gov/digitalcoast/](http://www.csc.noaa.gov/digitalcoast/)).

#### USING ELEVATION DATA TO TRACK SEA LEVEL RISE IN CALIFORNIA AND THE SAN FRANCISCO BAY AREA

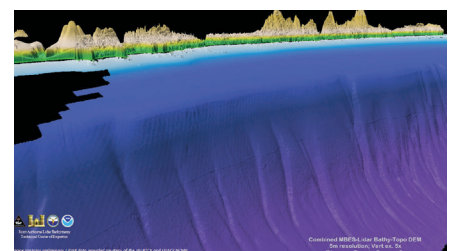
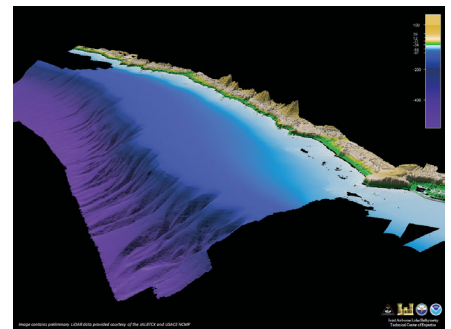
Building on the success of the NCMP, NOAA's Coastal Services Center (CSC) in partnership with the California State Coastal Conservancy (SCC) Ocean Protection Council tasked Fugro to collect airborne data over the California's 820 mile coastline. The agencies would like to expand the data set to include coastal lands up to 10 meter elevation above sea level. The additional LiDAR and new orthoimagery data will be added to the NCMP where it will be used to monitor the effects of sea level rise, provide for land use / land cover mapping, as well



LiDAR imagery over Orange County, California, acquired by Fugro as part of a seamless land/sea dataset along the entire California coastline. The imagery was developed by merging bathymetric and topographic LiDAR with multi-beam sonar data. This first-of-its-kind coastal mapping effort has been designed to support coastal and marine research and policy, including sea-level rise, land use management, and coastal erosion.

as other coastal management applications. Additionally a portion of the SCC acquisition, which includes the southern California coastline, will provide a second set of data over the project area to facilitate change detection.

San Francisco Bay is another important water body subject to sea level rise. Although not considered part of the coastal region, the San Francisco Bay Area is surrounded by three of the state's



largest cities, San Francisco, Oakland, and San Jose, and also hosts thousands of acres of wetlands. To assist coastal managers in preserving and monitoring sea level rise in the Bay, NOAA CSC in partnership with the San Francisco Bay Conservation and Development Commission developed the San Francisco Bay LiDAR program, and tasked Fugro to acquire 430 square miles of LiDAR over the northern Bay area. The southern

*continued on page 11*





## NASA AMES RESEARCH CENTER 'DEVELOP' PROGRAM

EDITED BY DR. J.W. (JAY) SKILES, SENIOR RESEARCH SCIENTIST, BIOSPHERIC SCIENCES BRANCH, EARTH SCIENCE DIVISION, NASA AMES RESEARCH CENTER, AND CATHERINE BURTON, EDITOR, BAAMA JOURNAL

NASA has a human capital development program neither formal nor informal called DEVELOP. The NASA Ames Research Center section of DEVELOP accepts college, post-graduate and some high school students for an intensive 10-week summer term. Students work with NASA scientists and leading geospatial technology and environmental science experts on real world problems. DEVELOP is part of the NASA Science Mission Directorate, Applied Sciences Program. The objective of the program is to demonstrate how NASA science measurements and predictions can be utilized at a local level, county state, federal and tribal levels.

DEVELOP is student-led, student-run which means students teams are responsible for providing products that agencies can use for resource management. Products are derived from projects that students work on during their intensive, summer internship. Mandatory fieldwork is required of each team and, sometimes, includes roughing it in the wild. Fieldwork can include: in situ measurements, ground truthing, and interacting with local mentors and field advisors.

Every year representatives from each team present their findings to NASA executive management at NASA Headquarters in Washington DC, and at American Society of Photogrammetry and Remote Sensing and American Geophysical Union conferences. Their research results are utilized or implemented by the agencies they serve.

The program is managed by Senior Scientist J.W. Skiles, Ph.D., Biospheric Science Branch, Earth Science Division who brought DEVELOP to Ames Research Center eight years ago. He is assisted every year by a student manager; this year Erin Justice from California State University Monterey Bay held the position.

Below are four summaries of the summer 2010 projects written by this year's teams.

### A GEOSPATIAL ASSESSMENT OF MOUNTAIN PINE BEETLE INFESTATIONS AND THEIR EFFECT ON THE HEALTH OF WENATCHEE AND OKANAGAN NATIONAL FORESTS

**AUTHORS:** Marco Allain, California State University Bakersfield; Evan Johnson, University of California, Los Angeles; Emily Williams, University of California, Santa Barbara; Andrew Nguyen, California State University East Bay; Stephanie Tsai, Henry M. Gunn High School.

**ADVISORS:** Susan Prichard, US Forest Service, and J.W. Skiles, Ph.D.

Fire-suppression over the past century has resulted in an accumulation of forest litter. Since nutrients are sequestered in forest litter and are not recycled by forest fires, soil nutrient concentrations have decreased. The forests of Northern Washington are in poor health as a result of these factors coupled with sequential droughts. The mountain pine beetle (MPB) thrives in such conditions, giving rise to an outbreak in Washington's Wenatchee and Okanogan National Forests. These outbreaks occur in three successive stages — the green, red, and gray stages. With the use of geospatial technology, these outbreaks can be better mapped and assessed to evaluate forest health. Field work on seventeen randomly selected sites was conducted using the point-centered quarter method. The stratified random sampling technique ensured that the sampled trees were representative of all classifications present. Additional measurements taken were soil nutrient concentrations (sodium [Na<sup>+</sup>], nitrate [NO<sub>3</sub><sup>-</sup>], and potassium [K<sup>+</sup>]), soil pH, and tree temperatures. There was no strong correlation between nutrient concentrations and percent mortality. Finally, satellite imagery was used to define infestation levels and geophysical parameters — such as land cover, vegetation classification, and vegetation stress. ASTER images were used with the Ratio Vegetation Index (RVI) to explore the differences in vegetation, while Modis was used to analyze the Disturbance



Beetle Team: Emily Williams, Dr. Susan Prichard (Science Advisor, US Forest Service), Stephanie Tsai, and Marco Allain in the Okanogan-Wenatchee National Forest, Washington.

Index (DI). Four other vegetation indices from Landsat TM5 were used to distinguish the green, red, and gray phases. Selected imagery was used to run a minimum distance supervised classification in ENVI, thus testing the ability of Hyperion imagery to detect the green phase.



Vegetation Team: Eve Minkin and A. Kristi Watson take GPS waypoints and spectroradiometer readings in a restored portion of the salt ponds. Science advisor Lee John uses the spectroradiometer while a US Fish and Wildlife employee takes additional data in the background.

## INVENTORY OF VEGETATION SPECTRAL PROPERTIES IN THE SOUTH BAY SALT PONDS: A DATABASE FOR ENHANCING DECISION SUPPORT AND RESTORATION MAPPING

**AUTHORS:** Ann K. Watson, East Central University, Oklahoma; Krysti Sukita, Santa Clara University; Wei-Chen Hsu, Sacramento State; Rachael Marzion, University of California, Berkeley; Eve Minkin, Los Altos High.

**ADVISORS:** Brian Fulfroft, Design, Community & Environment, Inc. and J.W. Skiles, Ph.D.

In the past century, more than 90% of the historical marshlands in the San Francisco Bay were converted to salt ponds or filled for urban development, and the resultant loss of biodiversity is noticeable. The municipalities along the southern margin of the San Francisco Bay are in the process of one of the most extensive tidal wetland restoration projects ever undertaken, The South Bay Salt Pond Restoration Project (SBSPRP). The goal of this project is to perform an analysis of the spectral variation between different salt pond vegetation types and to track the historical changes in vegetation distribution from 2000 to present. This project has identified the specific spectral characteristics of vegetation through the use of in-situ spectral measurements and spectral un-mixing of remotely sensed imagery from EO-1 Hyperion, Landsat and ASTER. These data can be used to produce a vegetation classification of imagery and will be shared with the SBSPRP partners to aid in their 3-year classification of the vegetation. Students' fieldwork in the salt ponds included the use of a handheld spectrometer to gather spectral data for image

classification. Plots were classified by taking an inventory of each vegetation species within each plot. Percent cover of each species was used to perform a supervised classification and compared to an un-mixed Landsat image.

## DEVELOPMENT OF A SEDIMENT MONITORING TOOL FOR PRIORITIZING SALT POND RESTORATION

**AUTHORS:** Michelle Newcomer, San Francisco State University; Amber Jean Kuss, San Francisco State University; Tyler Ketron, Stanford University; Alex Remar, California Polytechnic State University, San Luis Obispo; and Vivek Choksi, Gunn High School.

**ADVISOR:** Karen Grove, Ph.D. San Francisco State University

The South Bay Salt Pond Restoration Project (SBSPRP) is the largest tidal wetland restoration project on the west coast of the United States. The purpose of this project was to use in-situ and remote sensing measurements to create a GIS model capable of predicting sediment deposition in restored ponds in the Alviso complex. A sediment transport model, suspended sediment concentration maps, as well as laboratory analyses of in-situ sediment data were used to predict sediment deposition. Suspended sediment concentrations from our in-situ samples as well as the USGS's continuous monitoring sites were correlated with Landsat TM 5 and ASTER reflectance values using three statistical techniques—an Artificial Neural Network (ANN), a linear regression, and a multivariable regression to map suspended sediment concentrations. Grain size data were collected from Pond A21 to determine particle settling velocities, grain size distribution, particle densities, and rates of deposition. These data coupled with tidal frequencies were used in the MARSED model for predicting deposition rates for three years. Data from MODIS were used to track sediment transport pathways in the South Bay for

*continued on page 12*



Sedimentation Team: Michelle Newcomer, Alex Remar, Mike Torresan, Advisor, Amber Jean Kuss, Tyler Ketron, Vivek Choksi in the Sedimentation Laboratory of the US Geological Survey in Menlo Park. There, the DEVELOP students calculated suspended sediment settling velocities and determined sediment particle sizes and distributions for sediment samples taken from the South Bay salt pond area.



# INTERVIEW WITH KASS GREEN, PRESIDENT OF KASS GREEN & ASSOCIATES

EDITED BY CATHERINE BURTON, EDITOR, BAAMA JOURNAL

Kass Green, President of Kass Green & Associates, has been described by Directions Magazine as a "Remote Sensing Rock Star" (Directions Magazine podcast 03-18-10). She has been running Kass Green & Associates for four years, recently served as the President of the American Society of Photogrammetry and Remote Sensing and consults on geospatial strategy, technology and policy issues to private, educational, not for profit, and public organizations.



Kass Green, President of Kass Green & Associates

Kass is a long-time Bay Area resident. She attended high school in San Rafael, and completed her undergrad and did PhD work at University of California at Berkeley. In 1988 Kass co-founded a geospatial services company called Pacific Meridian Resources which she and her partners sold to Space Imaging in 2000.

At the beginning of September 2010, Kass sat down in San Francisco with BAAMA Journal editor Catherine Burton to talk about her current work at Kass Green & Associates, starting and running two remote sensing services companies in the Bay Area, and the geospatial industry. Here are some excerpts from their conversation.

## CURRENT PROJECTS AT KASS GREEN & ASSOCIATES

**KG:** I have four great projects. We're mapping the vegetation of the Grand Canyon and the National Parks of the Hawaii Islands. I'm also doing strategic planning work for ESRI and consulting to the Bill & Melinda Gates Foundation which means I go to Africa. I've been to Africa three times this year. I've got the four best projects in the world. My very favorite right now is the Grand Canyon.

It's huge; 1.4 million acres. It's a really detailed classification scheme. It's in three phases. The first phase was the rims and the draft maps have been delivered and they've been reviewed and they're really cool. Now we're going into phase two. Phase one we did all the image preprocessing and mosaicing in ERDAS and in phase two. My colleague, Mark Tukman, did all the image processing in Arc10. It took half the time and the results were much better. I think the image functionality in Arc10 is incredible.

I could easily, probably, do almost full time consulting for clients, but I love to make maps. I brought my laptop and my little hard drive with me to the interview because I wanted to look at the Grand Canyon on the way over [to The City] and look at it on the way back [to Berkeley]. I was made to do this... I was born to do it. There's something about it, especially imagery. I'm OK with GIS. But imagery, it's...

**CB:** Where your heart is.

**KG:** Yes. I'm really lucky I found it.

## STARTING, GROWTH AND SUCCESS AT PACIFIC MERIDIAN RESOURCES

**KG:** We did a business plan. And then the Forest Service, half-way through [our first] project [to map three national forests in central and eastern Washington using Landsat TM data], said, "We want to contract with you to map the spotted owl habitat in the Pacific Northwest." And they did. It was a sole-source, cost-plus contract for four million dollars. So we blew through our [our five year] business plan in six months and never looked back. Never did another business plan. We had 23 people in six months. We went from the six of us — four founders [Gene Forsburg, Sam Doak, Vaughan Landrum and me] and two employees — up to the 23 and then continued to grow to 75 employees when we sold the firm. We never shrunk, we just never looked back.

I think that's one of the most important things today if you want to grow a firm, is to have a good website. The next most important thing is to offer your clients solutions, not technologies. [Pacific Meridian] had separate web site tabs, which focused on certain solutions for clients. It's all about solution selling. You have to have a client that's in pain and they have to see hope and you have to be that hope. So if you've got a client that's in pain and doesn't have any hope you can't sell them anything. It doesn't matter how great your technology is. But if they see your solution as part of their hope then you're not going to have to compete with anybody. So we would package up the solutions.

**CB:** What are the tricks of the trade of being the most intriguing and persuasive?

**KG:** It's about being passionate about what you do. This is a joke that my husband Gene [Forsburg, one of the founders] and I had running all the time: people bought from me

*continued on page 11*



## ANNOUNCING THE WINNERS OF THE 2010 BAAMA EDUCATIONAL SCHOLARSHIP

The Fourth Annual BAAMA Educational Scholarship attracted applications from students across Bay Area colleges and universities. This year's winners submitted projects in a wide range of subject matters (public health service centers, access to sex education and web-based walking trails).

Susan Paulukonis, a graduate student at UC Berkeley School of Public Health, is our first place prize winner for her poster "California's Metabolic Centers: Usage Patterns and Need by Newborn Screening Identified Clients, 2005-2009." Susan utilized geocoding, spatial interpolation and network analysis to tackle the following problem: The California Genetic Disease Screening Program needed to understand who is using which metabolic referral centers, whether one or two more centers may be needed, and if so, where in the state they should be sited. This preliminary analysis determines center usage by clients, distance traveled, areas of unmet need and a preliminary look at diagnoses in the state. Susan plans to continue using GIS to explore the distribution of disease as well as access to services in California.

Deviyani Gurung, an undergraduate student at the University of California, Berkeley, was awarded the second place prize for her poster entry, "Is Planned Parenthood Serving You?" Deviyani's poster shows a series of maps in San Francisco, California. One map demonstrates proximity analyses between high schools and Planned Parenthood facilities. A second map presents optimal bicycle and bus routes. And, the third map suggests site locations for additional Planned Parenthood facilities. Overall, the poster reveals that many high school students are underserved by the current Planned Parenthood facility locations and offers a solution. Deviyani plans to pursue a career in city planning where she will use GIS to help allocate funds and resources to lower income areas.

Gary Lyons, a student at Diablo Valley College, is our third place prize winner for his web based Google Earth rendering of the Carquinez Strait, available at: [Terraordo.com/index.php/projects/maps\\_and\\_cartography/google\\_earth\\_overlay/](http://Terraordo.com/index.php/projects/maps_and_cartography/google_earth_overlay/). Four walking trails were mapped with GPS and the elevation profiles are shown for each trail. Gary plans to be a GIS professional with an emphasis in remote sensing and cartography.

First-, second-, and third-place prizes included awards of \$1500, \$1000, and \$500, respectively. All three awards include Individual Membership in BAAMA for the 2010 – 2011 fiscal year.

BAAMA is very excited about and proud of all those who entered the BAAMA Educational Scholarship competition. Congratulations to every student who is doing his / her part to use GIS and other geospatial technologies to improve and enhance the understanding and management of our Bay Area. Look out for the next scholarship in 2011! ✨

### BECOME A BAAMA MEMBER OR VOLUNTEER TODAY!

#### INDIVIDUAL MEMBERSHIP BENEFITS (\$25 ANNUAL FEE)

- Free admission to bi-monthly educational meetings
- Free admission to Technical Tours
- BAAMA Journal subscription via email
- E-mail announcements & reminders for Bay Area GIS activities

#### BAAMA SPONSOR BENEFITS (\$150 ANNUAL FEE)

- Up to 10 individuals from the organization receive all individual membership benefits listed above
- Listing as sponsor on BAAMA web site and in the BAAMA Journal
- Link to organization web site from BAAMA web site
- Once/year opportunity to send an informational or advertising announcement to all BAAMA members
- Opportunities to conduct Technical Tours

#### INTERESTED IN VOLUNTEERING?

Are you already a BAAMA member who'd like to get a little more involved? BAAMA welcomes members to take volunteer roles in the organization's activities!

There are many reasons to be a BAAMA volunteer. Volunteering will increase your professional toolbox and enhance your resume. And, you will get to better know your fellow BAAMA members and board members.

Download an application form from [BAAMA.org/application.pdf](http://BAAMA.org/application.pdf).



## INTERVIEW WITH KASS GREEN CONTINUED FROM PG. 9

because I got them really excited and their response was, "I want to be part of this." — because I would get that excited. People bought from Gene because they knew he was going to deliver... So it's a nice combination.

[Business success] is a combination of being bright, but more importantly of really working hard. The other important factor is taking advantage of opportunities when they're in front of you. Yes, there's a lot of luck in life, and its knowing when an opportunity is a real opportunity and when others aren't; making good choices — that's a lot of what business success depends upon.

My brother, who owned a company, he said two of the best things to us when we started the firm — and the old Pacific Meridian employees called them "Kass-isms" but they actually belong to my brother Bob. One of them is: "Out of chaos comes opportunity." So when's it really chaotic, that's when you're going to get your best opportunities to do your best work. So don't run from chaos, embrace it. The other one was "Keep your image high and your overhead low." They were silver bullets.

### INDUSTRY TRAJECTORY

**KG:** We keep making more people [but] we're not making any more land, which means land is the ultimate scarce resource. So institutions are going to pay more and more money to know about land because land is more and more valuable. That value is either evidenced by the dollar value of the land or it's evidenced by the political controversy over the land. I think GIS and remote sensing [are] incredible fields to be in because [they're] focused on land, and land allocation, and that market's not going to dry up.

**CB:** Some people in agencies and policy understand how useful GIS and remote sensing are and some people don't get it yet. It's still a low [line-item budget] item.

**KG:** But that's our job. I don't think we've done a very good job, as a community, in terms of making GIS and remote sensing important to people who make decisions. I think we tend to be dweebs.

**CB:** We're kinda nerdy.

**KG:** Yes, we're really nerdy. We tend to not want to be involved in politics; we want to be in front of our computers. And so, we're not doing a very good job communicating the value of what we do. The best communicator on our community ever is probably [Jack] Dangermond. He's excellent. He's passionate about the earth, about people. We need more people out there evangelizing. More people interested in policy.

### LOVING THE BAY AREA

**KG:** I travel a lot... There's nothing better than when that plane approaches San Francisco. It's so beautiful. There's lots of beautiful places in the world but not like this. ✨

## WHERE IN THE BAY AREA?



Submitted by Douglas Wright, GISP, Senior GIS Analyst, URS Corporation - Oakland, CA, Environmental Services

Is it a snail? An oil spill? Or is it an earthen blob? Identify this Bay Area feature and win a prize! And if you give the latitude-longitude coordinates that fall in this image, you definitely get bragging rights at the next BAAMA educational session! Send your answers to [editor@BAAMA.org](mailto:editor@BAAMA.org).

One lucky winner will be randomly selected from all correct entries received by March 1, 2011. The winner will be announced in the next issue, due out in spring, 2011.

## FUGRO MAPS THE WEST COAST

*continued from page 6*

portion of the Bay will be acquired through a separate USGS contract. Both this project and the West coast mapping project should be completed by the end of 2011.



### ABOUT THE AUTHOR

Edward Saade is president and managing director of Fugro EarthData. He brings over 35 years of experience in marine- and land-based geospatial and geophysical applications. Mr. Saade previously served as president of Fugro Pelagos, and under his leadership propelled them to becoming a world leader in LiDAR and

multi-beam (including backscatter) techniques for hydrographic surveys, coastal zone mapping and essential fish habitat analysis. ✨

## NASA DEVELOP PROGRAM CONTINUED FROM PAGE 8

further assessing future marsh development. Results from this project were applied to the Regional Ocean Modeling System (ROMS) sediment transport module for understanding sediment dynamics in the South Bay.

#### NASA AMES RESEARCH CENTER CLIMATE CHANGE EFFECTS AND ADAPTATION RESEARCH: HIND- AND FORECASTING FLOOD RISK OF NASA AMES RESEARCH CENTER USING THE BASINS MODEL

**AUTHORS:** Katherine Pitts, San Jose State University and Ariana Gonzales, California State Polytechnic University, Pomona.

**ADVISORS:** Max Loewenstein, Ph.D., NASA Ames Atmospheric Science Branch; Laura Iraci, Ph.D., NASA Ames Atmospheric Science Branch; and Cristina Milesi, Ph.D., CSUMB/NASA Ames Biospheric Science Branch

NASA Ames Research Center (ARC), located at the southern end of San Francisco Bay, is at increased risk of flooding under future climate change scenarios. Sea level rise, accompanied with tidal action, storm surges, and local erosion, may cause inundation if levee heights are not increased. Also, possible changes in storm frequency and intensity, as well as land use changes, could cause inland flooding by fresh water. This analysis uses the BASINS (Better Assessment Science Integrating Point & Non-point Sources) model to simulate hydrologic conditions at NASA ARC during selected past El Niño events. The 1997/98 storm event caused flooding on the Center, while the 1977/78 and the 1992/93 events, which were similar in precipitation amount and frequency, did not. BASINS will model these past heavy precipitation events and other future storm events under projected climate conditions to assess flood risk at NASA ARC. These preliminary results will assist master planners in adapting new procedures for NASA ARC future developments with awareness of anticipated climate change effects.



#### ABOUT THE AUTHOR

J. W. Skiles is a Research Scientist at NASA Ames Research Center and Manager for the NASA ARC DEVELOP Internship Program. He has worked in terrestrial ecosystem modeling, world grasslands, Arctic, arid, and semiarid ecosystems, African grazinglands and

operations research. He is studying terrestrial plant responses to increased ultraviolet radiation in the polar regions of the earth and the effects of low intensity microwave fields on vascular plants. He has a B.S. in biology from the University of Redlands, an M.S. in botany from the University of Idaho, and a Ph.D. in ecology and evolutionary biology from the University of California, Irvine. ☆



Climate Change Team: Katherine Pitts (with pole), Ariana Gonzales (back to camera) take levee height measurements just north of NASA Ames Research Center. Advisors Christina Melesi, Ph.D. and Max Loewenstein, Ph.D., look on. Dr. Laura Iraci (not shown) is also an advisor on this project.

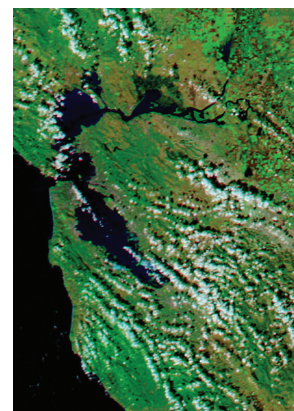
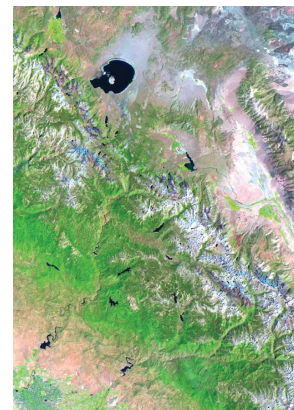


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## WINNER OF LAST ISSUE'S WHERE IN THE BAY AREA? CONTEST

The winner of Where in the Bay Area Spring 2010 is Richard "Dick" Fahey, GISP, AICP, Senior Transportation Planner Geographic Information Systems and Technical Support Caltrans – District 4, Office of Regional Planning.

Dick's answer: I'm pretty sure the answer to the subject question in the latest issue of the BAAMA Journal is the very mysterious spiral maze in Robert Sibley Volcanic Regional Preserve. Here are the coordinate pairs of the site: N37° 51' 10.86", W122° 11' 25.61"

BAAMA received eight responses, all of which were correct. The winner was chosen by random drawing. ✨

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